

Subject SA2

CMP Upgrade 2021/22

CMP Upgrade

This CMP Upgrade lists the changes to the Syllabus objectives, Core Reading and the ActEd material since last year that might realistically affect your chance of success in the exam. It is produced so that you can manually amend your 2021 CMP to make it suitable for study for the 2022 exams. It includes replacement pages and additional pages where appropriate.

Alternatively, you can buy a full set of up-to-date Course Notes / CMP at a significantly reduced price if you have previously bought the full-price Course Notes / CMP in this subject. Please see our 2022 *Student Brochure* for more details.

We only accept the current version of assignments for marking, *ie* those published for the sessions leading to the 2022 exams. If you wish to submit your script for marking but have only an old version, then you can order the current assignments free of charge if you have purchased the same assignments in the same subject in a previous year, and have purchased marking for the 2022 session.

This CMP Upgrade contains:

- all significant changes to the Syllabus objectives and Core Reading
- additional changes to the ActEd Course Notes and Assignments that will make them suitable for study for the 2022 exams.

1 Changes to the Syllabus

This section contains all the *non-trivial* changes to the Syllabus objectives.

Three additional bullet points have been included in objective 1.2 as follows:

- 1.2 Assess the effect of the general business environment on the management of life insurance business, in terms of:
- competition and other new business considerations
 - distribution of products
 - outsourcing
 - corporate finance, including mergers and closed funds
 - **climate change**
 - **pandemics**
 - **data science.**

2 Changes to the Core Reading

This section contains all the *non-trivial* changes to the Core Reading.

Chapter 2

Section 9.2

The following paragraph has been added at the end of this section:

Some jurisdictions (eg South Africa) have reduced the barriers to entry for new microinsurers. Reduced regulatory requirements, combined with increased use of technology, could potentially make writing microinsurance business attractive for some insurers.

Section 9.3

The following has been added at the end of this section:

It is therefore key that microinsurance products are simple enough for policyholders to understand and are easily accessible.

Insurers can potentially use technology to make products accessible. For example, consumers can use their mobile phones to streamline the application process and minimise customer paperwork.

Chapter 4

Section 1.5

The following has been added under the 'new business acquisition' example, after the paragraph 'Some insurers are ...':

Another example is the use of mobile phone technology for microinsurance to streamline business acquisition and minimise policyholder paperwork, making writing new business to lower income segments of the population more profitable.

New Sections 1.10 & 1.11

New material has been added on climate change and pandemics, for which replacement pages are provided.

Chapter 9

Section 1

The end of the final Core Reading paragraph in this section has been amended to:

– for example, in relation to consumer protection, equality and climate change.

New Section 7.2

Replacement pages are provided for this new section on Climate change.

Section 8.1

The first sentence of the final paragraph in this section has been replaced with:

The United Kingdom left the European Union on 1 January 2021 without an EU-wide arrangement for the operation and regulation of financial services. Prior to this, the UK was part of the EU and so Solvency II applied to UK insurers. Further discussions will be had between the UK and EU with regards to financial services and at the time of writing (May 2021) there remains considerable uncertainty with regards to the outcome of these talks. It is assumed within this version of the Core Reading that Solvency II continues to apply to UK insurers.

Section 8.5

There have been a number of changes in this section, so replacement pages are provided.

Chapter 10

References to 2020 have been updated to 2021.

New Section 5.2

A new section has been included on the United Kingdom. Replacement pages are provided.

Section 5.5 (now Section 5.6)

The following new Core Reading paragraph has been added after the first ActEd paragraph under the sub-heading 'Comparing jurisdictions':

A further example of adapting capital requirements to the local environment is the treatment of microinsurance in South Africa. In order to encourage wider access to insurance for people on low incomes, South Africa has reduced the minimum capital requirement for new microinsurers relative to the SAM SCR requirement.

The final Core Reading sentence in this section ('**The FSB initiated ...**') has been deleted.

Chapter 12

Section 0

The Core Reading has been updated to refer to May 2021.

Chapter 17

Section 0

In the Core Reading paragraph starting '**The users of this ...**', the word '**analysts**' has been inserted after '**tax inspectors**'.

Section 2.4

A number of Core Reading changes have been made in this section. Replacement pages are provided.

Chapter 22

New Section 8

New material has been added on climate risk, for which replacement pages are provided.

Chapter 23

Section 1

The following has been added to the bullet point list at the start of this section:

- **environmental, social and governance (ESG) considerations.**

New Section 1.3

New material has been added on environmental, social and governance (ESG) considerations, for which replacement pages are provided.

3 Changes to the ActEd material

This section contains all the *non-trivial* changes to the ActEd text.

The Summary pages have been amended throughout to make them easier to use as reference material for the exam, often by shortening the content. Only material changes to those pages are included in this Upgrade document.

Similarly, some Practice Questions have been amended to reduce the level of bookwork testing. Only material changes to those questions and solutions are described here.

Chapter 3

Section 1.2

The sentence ‘Determining the terms ...’ at the top of page 4 has been deleted.

Chapter 4

Section 0

The following ActEd paragraph has been added after the Core Reading:

Climate change and the impact of global pandemics are also considered.

Section 1

‘Climate change’ and ‘pandemics’ have been added to the bullet point list near the start of this section.

Section 1.2

The following has been added after the second Core Reading paragraph:

This means the extent to which insurance products are purchased by customers in that market, normally expressed as a percentage of the total potential market available.

Section 1.3

The final paragraph has been updated to:

There has been stock market recovery since then, but at the time of writing (May 2021), the total impact on the worldwide economy remains uncertain.

Section 1.7

The paragraph 'A recent survey ...' has been replaced with the following:

A 2015 survey reported that the UK was at that time facing a savings gap of around £250 billion, with many individuals under-providing for themselves in terms of long-term savings. The gap is expected to grow considerably, as a result of factors such as pressures on government spending, the rising cost of long-term care and the decline of defined benefit pension provision.

New Sections 1.10 & 1.11

As previously noted, replacement pages are provided for these new sections.

Section 2.1

The phrase '(ie reduced or not paid if the individual has other income or capital)' has been added to the end of the fifth bullet point.

Section 2.10

The following has been inserted below the Core Reading paragraph starting 'A large proportion of people ...'.

These bonuses are effectively a type of commission.

Summary

Climate change and pandemics have been added to the first bullet point list.

Practice Questions

An additional page is provided, containing a new question (on pandemics) and its solution.

Chapter 5

Section 2.3

The following has been added at the end of this section:

At the time of writing (May 2021) the requirements of the EU Gender Directive remain embedded within UK equality legislation, despite the UK no longer being part of the EU. Although the situation may well change going forwards, there does not appear to be any intention at present to return to permitting gender-specific insurance pricing.

Chapter 6

The dates referenced in this chapter have been updated from 2020 to 2021.

Section 3.3

Under the sub-heading 'The lifetime allowance', the phrase 'and stayed at that level for 2021/22' has been added at the end of the first ActEd paragraph.

Summary

The summary contents have been considerably rearranged, so a replacement page is provided.

Practice Questions

A new Question 6.1 has been included and Question 6.2 has been amended, so replacement pages are provided.

Chapter 7

The dates referenced in this chapter have been updated from 2020 to 2021.

Section 2.4

In the first ActEd sentence, the phrase 'the next section' has been amended to 'later sections of this chapter'.

Section 4.1

The following has been added below the ActEd paragraph starting 'IFRS ...':

As described in the chapter on Profit reporting, delays to the implementation of IFRS 17 have resulted in more widespread use of Solvency II liabilities in accounts, so this is no longer 'unusual'.

Summary

The summary contents have been considerably rearranged, so a replacement page is provided.

Chapter 9

Section 2.3

The reference to the date April 2020 (above the table) has been updated to refer to April 2021.

Section 7

Replacement pages are provided for this section. As well as the new Section 7.2 on climate change, the ActEd paragraph under the sub-heading 'APS L1: ...' in Section 7.1 has been expanded.

Summary

A replacement page is provided (existing pages 29 and 30 can also be removed).

Practice Questions

Question 9.1 solution now also includes the following point under the sub-heading 'Capital requirements':

There may be specific requirements relating to assessing climate change scenarios.

Chapter 10

Section 5

As previously indicated, replacement pages are provided in relation to new Section 5.2. These also include some amendments to ActEd text in original Section 5.2 (now Section 5.3) on the USA.

Section 5.5 (now Section 5.6)

The following has been inserted under the Core Reading point 'The main regulatory capital ...':

As for Solvency II, it is referred to as the Solvency Capital Requirement (SCR).

Practice Questions

Question 10.1 has been amended to:

Give possible reasons why insurance companies reporting under Solvency II are required to have specific functions under Pillar 2.

The introduction to Question 10.2 has been amended to 'Outline the main purpose of each of the following:' and EIOPA has been deleted from the list.

A replacement page covering the solutions to these two questions is provided.

Chapter 11

Section 2.1

The table on page 9 showing the risk-free discount rates published by EIOPA has been updated to reflect the term structure as at April 2021.

Chapter 12

Section 2.1

The following has been inserted above the final Core Reading paragraph in this section:

At the time of writing (May 2021), there are plans to replace the FRC with a new regulatory body, whose responsibilities are expected to include oversight of the UK actuarial profession.

Section 2.5

Under the second bullet point, the phrase 'These guides, and' has been replaced with a new sentence 'The guide for employers was withdrawn in 2020.' The remaining wording now forms a sentence starting 'Further ...'.

The following has been added below the third bullet point:

This was withdrawn in 2018, but guidance material has subsequently been made available on ethics and professionalism in relation to data science.

Practice Questions

Question 12.2 has been amended to:

State, with reasons, the professional standards and guidance that are or might be relevant to a With-Profits Actuary who is a UK-based member of the IFoA.

A replacement page is provided of the amended solution.

Chapter 13

Section 3.3

The following has been inserted at the end of the sub-section on 'Canada':

An updated set of 'fair treatment of customers' (FTC) standards came into effect in Ontario at the start of 2021. This represented the adoption of guidance developed from ICP 19 by the Canadian national insurance regulators.

Section 4

The following has been inserted after the fourth Core Reading paragraph (starting 'APS L1 ...'):

The updated version of APS L1 issued in 2017 no longer included the above statement, but the essence of the point remains.

Summary

A replacement page is provided.

Chapter 15

Practice Questions

An additional page is provided, containing a new question (on an ESG investment opportunity) and its solution.

Chapter 16

Section 2.10

The sentence 'This is effectively the balancing item in the analysis.' has been inserted between the two Core Reading paragraphs.

Chapter 17

Section 2.4

A number of changes to ActEd content have been made in this section. As previously indicated, replacement pages are provided.

Summary

In the sub-section on IFRS 17 Insurance Contracts, the Building Block Approach (BBA) is now alternatively referred to as the General Measurement Model (GMM) and the following is included on transitional arrangements:

To reduce the implementation burden, transitional arrangements are available when IFRS 17 comes into effect. The three possible approaches are:

- Full Retrospective Approach (FRA)
- Modified Retrospective Approach (MRA)
- Fair Value Approach (FVA).

Practice Questions

Question 17.4 has been amended to:

Explain the impact of the US GAAP matching principle, in relation to expense recognition, on the emergence of profits in the financial statements.

A replacement page has been produced that includes the solution to this updated Question 17.4 and an amended version of the solution to Question 17.5. [After inserting this new page, please cross out what remains of the solution to previous Question 17.4 on page 28.]

In the solution to Question 17.2, the reference to the Building Block Approach has been amended to the General Measurement Model.

Chapter 18

Section 4.2

In the solution on page 21, the phrase 'or there is a separate risk margin that is released in the PVIF' has been included at the end of the final sub-bullet point.

Chapter 19

Section 1

In the first question, 'six' has been amended to 'five' and the phrase ', eg for smoothing or' has been inserted after 'support contracts' in the final bullet point of the solution.

Section 3.7

The following has been added at the end of this section:

There was some mention of this in the chapter on Allowing for tax.

Chapter 20

Section 2.3

In the question, the phrase ', for regular (or recurrent single) premium business' has been inserted after 'a reason why'.

Practice Questions

The solution to Question 20.1 has been expanded to the following:

The key differences are:

- On conventional with-profits business, the terminal bonus rate normally varies by policy duration. On unitised with-profits contracts, there is more complexity. Different terminal bonus rates might be applied to different 'vintages' of units, *ie* a different rate according to when each tranche of units was purchased. This approach is needed because premiums are typically variable or flexible and because the unitised with-profits investment option might be offered alongside a range of unit-linked funds, from which switching can take place.
- On unitised with-profits contracts, the terminal bonus might be negative (*ie* a market value reduction). This protects the insurer against the effective of selective withdrawals.

Chapter 21

Practice Questions

Question 21.1 has been amended to:

A life insurance company sells the newer style of unitised with-profits contract, with no explicit bonuses and policyholders receiving 100% of a smoothed investment surplus.

Suggest management actions that could apply in relation to this type of business.

The instruction sentence of Question 21.2 has been amended to:

Explain why different notice periods are required for changing Principles and Practices.

A replacement page is provided, covering the solutions to both the above amended questions.

Chapter 22

Section 0

Bullet points for operational risk (encompassing conduct, model and unit pricing risks) and insurance risk (encompassing the final four existing bullet points) have been inserted, and a final point has been added:

- climate risk – which encompasses each of the other main risk categories.

Section 4

The following has been included immediately above the question:

This refers to investigating the liquidity position and its robustness under cashflow uncertainties.

Section 6.5

The final sentence has been amended to:

This mismatch between the actual underlying risk and its mitigation technique is an example of basis risk.

New Section 8

As previously noted, replacement pages are provided for this new section on climate risk.

Summary

A replacement page is provided.

Practice Questions

An additional page is provided, containing a new question (on climate risk) and its solution.

Chapter 23

Section 1

The heading '1.1 Product design factors' has been inserted at the start of this section.

The following has been inserted after the Core Reading paragraph below the bullet point list ('Most of these factors ...'):

ESG considerations extend beyond the climate change concepts that have been mentioned in earlier chapters. They are covered in more detail later in this section.

The heading '1.2 Product pricing example' has been inserted after the Core Reading paragraph starting 'Note: It is important ...'.

In the solution, the following paragraph has been included after the Core Reading paragraph starting 'As the business is sold through ...':

Similarly, the company might choose to have higher charges but offer a wider range of specialist linked funds than its competitors, *eg* including several ethical or 'green' investment funds.

New Section 1.3

As previously noted, replacement pages are provided for this new section.

Summary

The bullet point list has been extended to include 'environmental, social and governance (ESG) considerations' and the following has been added below that list:

ESG considerations are of particular relevance to product design in terms of offering sustainable investment fund choices for unit-linked business.

Practice Questions

The following point has been added to the solution for Question 23.2 part (i):

If the company is offering ESG investment fund choices, there will be additional costs in researching the underlying assets and providing sufficient customer information to support the 'sustainable investment' description. [1]

Chapter 24

Practice Questions

The instruction for Question 24.2 part (i) has been amended to 'Comment on each of ...' and the paragraph at the start of the solution to that question part has been replaced with:

The instruction 'comment on' plus the fact that three options are being covered for 15 marks means that ideas may have to be dealt with fairly briefly. Long discussions of ideas are unlikely to be required.

When being asked to 'comment on' (ie give brief conclusions on) one or more proposals or courses of action, it is useful to consider the advantages and disadvantages of each.

Chapter 25

Section 0

The ActEd paragraph has been replaced with the following:

The glossary is a useful reference tool, giving fairly concise definitions of many life insurance concepts. Make sure that you *understand* all of the terms included, as you may find yourself having to explain or apply one or more of them in the exam.

4 Changes to the X Assignments

We have made a number of changes to the assignments, most of these being to reflect the recent changes to the IFoA exams. We have not detailed these changes in this Upgrade document.

If you would like the new assignments *without* marking, then retakers can purchase an updated CMP or standalone X Assignments at a significantly reduced price. Further information on retaker discounts can be found at: www.acted.co.uk/paper_reduced_prices.html.

If you wish to submit your scripts for marking but have only an old version, then you can order the current assignments free of charge if you have purchased the same assignments in the same subject in a previous year, and have purchased marking for the 2022 session. We only accept the current version of assignments for marking, *ie* those published for the sessions leading to the 2022 exams.

5 Other tuition services

In addition to the CMP you might find the following services helpful with your study.

5.1 Study material

We also offer the following study material in Subject SA2:

- Flashcards
- ASET (ActEd Solutions with Exam Technique) and Mini-ASET
- Mock Exam and AMP (Additional Mock Pack).

For further details on ActEd's study materials, please refer to the *2022 Student Brochure*, which is available from the ActEd website at www.ActEd.co.uk.

5.2 Tutorials

We offer the following (face-to-face and/or online) tutorials in Subject SA2:

- a set of Regular Tutorials (lasting a total of three days)
- a Block (or Split Block) Tutorial (lasting three full days)
- an Online Classroom.

For further details on ActEd's tutorials, please refer to our latest *Tuition Bulletin*, which is available from the ActEd website at www.ActEd.co.uk.

5.3 Marking

You can have your attempts at any of our assignments or mock exams marked by ActEd. When marking your scripts, we aim to provide specific advice to improve your chances of success in the exam and to return your scripts as quickly as possible.

For further details on ActEd's marking services, please refer to the *2022 Student Brochure*, which is available from the ActEd website at www.ActEd.co.uk.

5.4 Feedback on the study material

ActEd is always pleased to get feedback from students about any aspect of our study programmes. Please let us know if you have any specific comments (*eg* about certain sections of the notes or particular questions) or general suggestions about how we can improve the study material. We will incorporate as many of your suggestions as we can when we update the course material each year.

If you have any comments on this course please send them by email to SA2@bpp.com.

1.9 Industry bodies

In certain jurisdictions, firms may have linked together to form industry bodies. These bodies can help the individual firms to ensure best practice across the industry, greater lobbying power with governments and increased public confidence.

Examples of industry bodies are:

- In the UK, the ABI (Association of British Insurers) produces a wide range of codes of practice, statements of best practice and guidance notes, ranging in classification from voluntary to compulsory for ABI members.

These largely cover aspects relating to product design and distribution.

- In Australia, the Financial Services Council promotes best practice for the financial services industry by setting mandatory standards for its members and providing guidance to assist in operational efficiency.

1.10 Climate change

Whilst the scientific consensus is that climate change associated with global warming is in progress (IPCC 2014), the scale and timing of its impacts are uncertain.

The IPCC is the Intergovernmental Panel on Climate Change, a United Nations body that was created to provide regular scientific assessments on climate change and its related risks.

The effects of climate change could potentially have a wide-ranging impact on health and mortality, physical assets and financial markets. The future actions of society in response to climate change, and their ultimate effectiveness in mitigating the impacts of climate change, are also uncertain.

The overall state of understanding of climate change is also changing rapidly. This includes developments in the understanding of climate change impacts for the world as a whole, but also modelling, regulation and best practice governance for financial institutions.

Climate change could have significant implications for life insurers. It could impact many different areas of actuarial work including:

- product design
- pricing
- reserving
- capital management
- risk management
- investment.

These impacts are driven by potential changes in:

- mortality and morbidity rates, *eg* due to implications for food and water availability and the spread of diseases
- asset values, *eg* poor performance of equity holdings in companies that have a reliance on fossil fuels

- economic growth rates, thereby influencing the demand for and pricing of insurance products
- the level of uncertainty about future trends and outcomes
- regulation.

Boards of financial institutions will need to consider the potential impact of climate risks more in future business decision making and strategic planning.

Various major international actuarial associations have produced practical guidance for their members about the potential considerations relating to climate change. An example of this is the IFOA's Risk Alert on Climate-Related Risks (2017), which states that:

'Actuaries should ensure that they understand, and are clear in communicating, the extent to which they have taken account of climate-related risks in any relevant decisions, calculations or advice.'

It goes on to state that:

- all institutions should 'consider the potential implications of climate-related risks on their invested assets'
- life insurers should 'evaluate and manage the impact of changing patterns of temperature and disease on mortality'
- life and health insurance providers may need to make 'alterations to pricing or other assumptions' in relation to mortality and morbidity risks.

Climate change is covered further in the chapters on Regulatory environment and Risk management and controls.

1.11 Pandemics

At the time of writing (May 2021) the coronavirus pandemic has had a significant impact on the health of the population in many countries and more widely on the global economy. The long-term impacts of the coronavirus pandemic (for example on mortality and morbidity rates) and understanding the reasons for significant differences in experience between countries and different population sub-groups is likely to take some time.

This version of the Core Reading will not go into more detail on the coronavirus pandemic itself.

Globally, the World Health Organisation recognises that infectious disease in the form of a pandemic presents a huge threat to global health.

There have been several significant pandemics in the last two hundred years, mostly from influenza ('flu) viruses. These include the Spanish influenza of 1918-1920 with an estimated worldwide death toll of at least 50 million.

The HIV / AIDS pandemic that was first recognised in the 1980s remains active. Although now better managed through developed drugs, over 30 million have died from AIDS-related illnesses.

At the time of writing (May 2021), global deaths from COVID-19 are around 3.5 million – and this figure continues to increase.

The UK national risk register from 2017 considered that emergence of a pandemic influenza and or a new infectious disease could lead to a civil emergency, and the threat was considered to be equal to or higher than that of extreme weather events. The report also indicated that there was considerable uncertainty about the timing of any event and what it would look like.

The risk of infectious diseases emerging has increased due to human impact on the environment. For example, both the increased demand for meat due to a rising global population and deforestation leading to more intensive farming have put humans and animals in closer contact. This increases the risk of pathogens spreading from animals to humans. Whilst this risk is not new, the probability of a pandemic event occurring in the future has increased.

Pandemics have the potential to materially impact all aspects of a life insurer's business.

As well as the clear link with mortality and morbidity rates, there could be significant impacts on:

- economic growth and therefore related factors such as asset values and demand for products
- operational aspects, including staff sickness.

The potential impact of pandemics on life insurers is likely to be an important consideration for regulators. In particular, regulators are likely to want to ensure that life insurers have sufficient capital to meet policyholder liabilities in the event of a pandemic. Regulators may wish to see life insurers carry out stress testing to show that they are resilient to realistic pandemic scenarios.

2 Distribution of products

2.1 Propensity of consumers to purchase products

Life insurance products are typically thought of as a product that is sold, not bought. Although people know they should take out life insurance policies to provide lump sums or an income for the benefit of their dependants, or should save regularly to provide a pension when they retire, many have been reluctant to do this.

Reasons for this reluctance include:

- a desire to live for now rather than save for the future
- a feeling that the State will always provide
- lack of money
- lack of incentives from the government
- fear that personal provision may be wasted if State provision is means-tested (*ie* reduced or not paid if the individual has other income or capital)
- lack of trust in the savings industry.

People would often rather spend their money as they earn it on more tangible benefits – cars, holidays, houses, eating out, entertainment – than provide for a future that they know will happen but which they cannot bring themselves to think about.

There may be particular challenges for life insurers selling in developing markets, as it is possible that a significant proportion of the population may be on a low income and may not have sufficient disposable income to purchase a life product.

A consumer's inclination to save is increased if there is an incentive. This could be:

- tax-related with tax relief on premiums or contributions, or tax-free benefits
- to protect an inheritance
- loan-related, with the consumer being more willing to effect a life policy that will repay an outstanding loan on death, if effecting the policy makes it more likely that the lender will provide the loan
- employer-related, such as if an employee contributing to a company pension scheme means that the employer will also contribute.

Better education on the need to save, or on the consequences of not saving, might also improve the inclination to save.

There are, nevertheless, many people who *will* make provision at their own initiative. These are more likely to be those people who can afford to do this as well as enjoy more tangible and immediate benefits.

In many jurisdictions, sales of life insurance products have historically been made through:

- financial advisers
- agents (single or multi-tied)
- direct.



Chapter 4 Additional Practice Question

Discuss how customer demand for life insurance products might be impacted by the onset of a significant pandemic.



Chapter 4 Solutions

Impact of serious pandemic on customer demand

Demand could increase for protection products, including funeral plans, if there is an increased awareness of mortality and morbidity as a result – particularly the financial implications of death and ill health.

However, if underwriting is made stricter as a result of the pandemic, this could reduce customer demand.

Similarly, demand would also be dampened by increasing prices of protection products to allow for higher expected mortality / morbidity rates and greater uncertainty.

A serious pandemic is likely to have an adverse impact on economic growth and there might be higher unemployment and pressures on income. This is likely to result in fewer policies being purchased, particularly for savings purposes.

On the other hand, demand for insurance products might be maintained if other types of spending are curtailed – for example, due to restrictions on leisure activities and travel in order to manage the spread of the disease.

If investment markets are unsettled by the pandemic, with high asset price volatility, this could reduce the demand for unit-linked investment contracts.

Products with guarantees might be more attractive, but insurers may not wish to continue offering such products in that economic climate.

Interest rates might need to be lowered in order to support the economy. This would have a detrimental impact on annuity rates in particular, making that product less attractive.

Although higher mortality rates might be expected to counteract this, insurers are unlikely to reprice annuities immediately on that basis – until the longer-term effects of the pandemic are understood.

Chapter 6 Summary

Taxation of policyholders

Life savings contracts	
Premiums	Benefits
Payable out of post-tax earnings No income tax relief	Chargeable event gains (broadly = excess of benefits received over premiums paid) are taxed as income Tax rate = marginal rate minus basic (lower) rate of income tax [Basic rate tax liability is effectively met by the life insurer] Qualifying policies: death, maturity and late term surrender (full / partial) are not chargeable events
General annuity contracts	
Premiums	Benefits
No income tax relief	Capital content component is tax free Income content component is taxed at marginal rate of income tax
Pension contracts	
Premiums / contributions	Benefits
Payable out of pre-tax earnings, so gain income tax relief Subject to limits: <ul style="list-style-type: none"> personal allowance (higher of £3,600 <i>pa</i> and full taxable earnings) annual allowance (normally £40,000) 	Investment returns: roll up free of tax 25% of fund can be taken tax free Balance is taxed at marginal rate of income tax when taken as benefits (eg as annuity or drawdown income) Subject to lifetime allowance: excess funds above this limit incur additional tax charges

The practice questions start on the next page so that you can keep the chapter summaries together for revision purposes.



Chapter 6 Practice Questions

6.1 The taxation of two unit-linked products, from the policyholder's perspective, is as follows:

Product A Purchased from post-tax income with no tax relief on premiums

Investment return accrues gross of tax

The excess of benefits received over premiums paid is taxed at the policyholder's full rate of income tax

Product B Purchased from pre-tax income, thereby receiving tax relief on premiums

Investment return accrues gross of tax

Benefits received are taxed at the policyholder's full rate of income tax

Explain why the taxation of Product B might be preferable for a policyholder, compared with the approach taken for Product A.

6.2 Compare how a UK policyholder may be taxed on receipt of benefits arising from the following:

Exam style

- life savings contract
- general annuity contract.

[4]

The solutions start on the next page so that you can separate the questions and solutions.



Chapter 6 Solutions

6.1 *Comparison of taxation approaches*

Under a unit-linked product, the benefit received can be considered to comprise the following:

$$\begin{aligned} \text{Benefit} = & \text{total premiums paid} + \text{investment earnings} - \text{charges} \\ & + \text{any additional benefit in excess of unit fund (eg guarantee)} \end{aligned}$$

Under Product A, 'total premiums paid' has effectively incurred tax at the income tax rate applicable when the income used to pay those premiums was earned. The remainder is taxed at the income tax rate applicable when the benefit is received.

Under Product B, all of these components are taxed at the income tax rate applicable when the benefit is received.

Product B is therefore preferable from a taxation perspective, if the policyholder is subject to a lower income tax rate in future, when the benefits are taken.

For example, this could be the case if the product is being used to fund for retirement, as income is generally lower in retirement than when employed and so the individual could move to a lower tax band.

Alternatively, it could be the case if income tax rates are expected to go down in future. For example, they may be temporarily high due to a significant government funding shortfall.

Product B could also be favourable if it encourages larger premiums to be paid, since they are paid from pre-tax rather than post-tax earnings. If the charging structure includes some fixed rather than all proportionate charges, this can be beneficial for the policyholder.

6.2 *UK policyholder taxation: life savings contract vs general annuity contract*

Similarities

Where tax is payable under the life savings contract, it is paid on the excess, if any, of the benefits received over the total amount paid in premiums. [½]

For general annuity contracts, the annuitant is liable to tax on the amount of each annuity payment that exceeds the capital content. [½]

Since the capital content basically represents the premium being gradually returned to the annuitant, these approaches are similar. [½]

Differences

However, the amount of benefit taxed under a general annuity will only equal benefits received minus premium paid if the annuitant lives for the same number of years as their expectation of life as calculated at the commencement of the annuity using the mortality table set out in tax legislation. [1]

A more significant difference is that policyholder tax is payable at different rates for the two types of contract. [½]

For the life savings contract, the tax rate used is the policyholder's marginal income tax rate less the basic rate of income tax. [½]

For the general annuity contract, the tax rate applicable is the policyholder's full marginal income tax rate. [½]

Taxation of life savings contracts is more complex than for general annuity contracts due to:

- division into qualifying and non-qualifying business, with some types of benefit not being taxable for the former [1]
- there being more detailed rules about how tax is calculated on death benefits and partial surrenders – which do not apply to annuities. [1]

[Maximum 4]

Chapter 7 Summary

Life insurance company taxation

This can vary significantly between countries / types of business. May be taxed on:

- profit
- investment income and gains less operating expenses (some / all)
- premium income.

UK tax environment

UK life insurance company taxation is derived from how the policyholder is taxed.

Business is classified into two funds for taxation purposes:

Tax fund	Non-BLAGAB	BLAGAB (Basic Life Assurance and General Annuity Business)
Products included	Pensions, protection business written from 1/1/13, most overseas business, PHI (income protection), some reinsurance, ISAs, child trust funds [Or <i>all</i> business, if BLAGAB is insubstantial]	Life savings business, protection business written before 1/1/13, general annuities
Taxable amount	Trading profit = premiums + investment return – claims – expenses +/- change in liabilities Losses can be used to offset profits (<i>eg</i> in future tax years), subject to limits Mutual: taxable amount is zero	I-E Subject to the minimum profits test (proprietaries only) <i>I</i> mainly comprises investment income (excluding dividends) and capital gains (but only when realised for equities and property, with some indexation allowed) <i>E</i> comprises expenses (acquisition expenses are spread), income component of general annuities, brought forward XSE
Tax rate	Corporation tax rate	Shareholder share (= adjusted minimum profit; zero for a mutual): corporation tax rate Policyholder share: basic rate of income tax

Minimum profit and XSE

Minimum profit is effectively the accounting profit arising on the BLAGAB business, with some adjustments.

It has two roles for the taxation of BLAGAB business in a **proprietary**:

- splitting the taxable income between shareholders and policyholders
- determining a minimum amount of taxable income, by applying the 'minimum profits test'.

If an adjusted $I-E$ computation produces an answer lower than the minimum profit, then it is modified so that it gives an answer equal to the minimum profit.

In this case, the company carries forward unrelieved expenses (XSE) to the following year's tax calculation.

A company may become temporarily XSE due to various events, such as:

- poor (even negative) investment returns
- being newly established with heavy expenses
- a significant weakening of the liability valuation basis.

The minimum profits test does not apply to a **mutual**. If $E > I$, a mutual carries forward the excess expenses as XSE.

7 Other legislation, regulation and guidance

In addition to specific life insurance regulation, the operation of the insurer may be impacted by other legislation or professional guidance.

7.1 Professional guidance

In addition to local regulation, specific professional guidance may apply in respect of life insurance in certain jurisdictions.

APS L1: Duties and Responsibilities of Life Assurance Actuaries

An example that is specifically related to the UK is that the Institute and Faculty of Actuaries has issued specific professional guidance that applies to members who are appointed as, or who provide support to, Chief Actuaries, Actuarial Function Holders, With-Profits Actuaries, Appropriate Actuaries and Reviewing Actuaries, appointed by or in respect of UK authorised insurance companies and friendly societies writing long-term insurance business.

APS L1 now uses the term 'Small Insurer Chief Actuary' rather than 'Actuarial Function Holder' to designate the actuary responsible for this role within UK companies that are too small to fall under the Solvency II regime. Appropriate Actuaries and Reviewing Actuaries are other examples of statutory actuarial roles specific to the UK.

APS L2: The Financial Services and Markets Act 2000 (Communications by Actuaries) Regulations 2003

Another example of professional guidance issued by the Institute and Faculty of Actuaries relates to 'whistle-blowing', *ie* making the regulator aware of matters of concern.

APS L2 applies to members who are Actuarial Function Holders and With-Profits Actuaries appointed by or in respect of UK authorised insurance companies and Appropriate Actuaries of Friendly Societies.

Matters that may need to be communicated to the regulators under APS L2 include:

- contravention of legislation by an insurer
- significant risk that an insurer's assets may become insufficient to meet liabilities
- significant risk that the insurer did not or may not take into account policyholder interests
- inadequacies in the insurer's relationship with the actuary (*eg* the provision of information and resources).

The two examples of professional guidance described above are specifically related to UK legislation. However, guidance for IFoA members working in non-UK jurisdictions is included in APS X1 below, and all IFoA members are covered by The Actuaries' Code, irrespective of location.

Also of relevance to life insurance actuaries are:

APS X1: Applying Standards to Actuarial Work (effective 1 July 2017)

This sets out principles to be applied by members to determine which standards they must or should be applying to a piece of work. It also applies to the IFoA's members who are based outside the UK.

APS X2: Review of Actuarial Work

This applies to all members and relates to the need to consider the extent to which review (including independent peer review) is required for any 'actuarial work', *ie* work undertaken by a member in their capacity as a person with actuarial skills on which the intended recipient of that work is entitled to rely.

APS X3: The Actuary as an Expert in Legal Proceedings

This applies to actuaries who are appointed to act as an expert witness in legal proceedings held before courts, tribunals or similar.

Other guidance

There may be guidance issued by other professional actuarial bodies that applies to specific jurisdictions, and this should be followed alongside any IFoA guidance in accordance with APS X1.

Professional guidance is covered in more detail in the Professional standards and guidance chapter later in the course.

7.2 Climate change

Policymakers and financial regulators are assessing the impact that climate change could have on the financial system and also the role that the financial system can play in achieving an orderly transition to the new environmental landscape, in particular to a low-carbon economy.

In order to limit the impact of climate change on the financial system, many regulators are working on regulations whose aims include ensuring that financial institutions:

- consider climate risks in business decision making and strategic planning
- effectively disclose and report on climate-related risks and opportunities
- adopt a consistent and reliable means of assessing, pricing, and managing climate-related risks
- incorporate environmental, social and governance (ESG) factors into investment management decisions
- incorporate financial risks from climate change into existing risk management processes
- use scenario analysis to inform risk identification and to estimate the impact of financial risks arising from climate change
- consider the impact of climate risks on the ability to meet obligations towards policyholders and other key stakeholders.

Some regulators have issued guidance on the topic of insurers' approaches to understanding and managing the financial risks from climate change.

For example, in the UK climate change was included as a scenario in the PRA's Insurance Stress Test 2019. In this exploratory exercise, the PRA proposed climate change scenarios involving both physical and transition channels, including shocks to asset values varying by sector. Firms were invited to share the assumptions and parameters derived internally when assessing the likely impacts of climate change.

Climate-related physical and transition 'channels' (or risk types) are described further in the chapter on Risk management and controls.

7.3 Other legislation

The earlier chapter on Legislation outlined the relevance of consumer protection and equality legislation in respect of life insurance business.

All study material produced by ActEd is copyright and is sold for the exclusive use of the purchaser. The copyright is owned by Institute and Faculty Education Limited, a subsidiary of the Institute and Faculty of Actuaries.

Unless prior authority is granted by ActEd, you may not hire out, lend, give out, sell, store or transmit electronically or photocopy any part of the study material.

You must take care of your study material to ensure that it is not used or copied by anybody else.

Legal action will be taken if these terms are infringed. In addition, we may seek to take disciplinary action through the profession or through your employer.

These conditions remain in force after you have finished using the course.

There are also roles for two federal entities involved in insurance regulation:

- **Federal Insurance Office (exists within the US department of Treasury) – which monitors all aspects of the insurance sector and advises on important international and national insurance matters, but does not have a supervisory role**
- **Federal Reserve Board – which has consolidated oversight of insurance companies deemed as systematically important.**

The US regulatory, legal and tax framework has generally led to a preference for the use of prescriptive rules and regulations combined with overall asset adequacy analysis, with relatively recent inclusion of certain principles-based requirements. This is covered in more detail in the next chapter.

8.3 China

Whilst China has a large insurance market, there are considerable differences to those in the United Kingdom and the United States. The insurance industry in China only reopened in the 1980s and has experienced significantly higher growth than most western countries since then.

From 1949, the Communist Party government ran all insurance operations in mainland China, establishing the People's Insurance Company of China (PICC). The first competing insurance companies were licensed in the 1980s, following the launch of economic reforms.

The China Banking and Insurance Regulatory Commission (CBIRC) was established in April 2018 by a merger of China's banking and insurance regulators, namely the China Banking Regulatory Commission (CBRC) and China Insurance Regulatory Commission (CIRC).

The CBIRC is responsible for supervising the establishment and ongoing business activities of banking and insurance institutions. It is also responsible for taking enforcement actions against regulatory violations.

The CBIRC has implemented significant changes to its capital requirements, risk management and transparency disclosures through the introduction of its C-ROSS framework. The C-ROSS framework has similarities to Solvency II, although the C-ROSS framework is also intended to reflect the circumstances of the Chinese insurance market, rather than be a direct copy of Solvency II. This is discussed in more detail in the next chapter.

8.4 Australia

Australia has a large developed financial services market. The Australian Prudential Regulation Authority (APRA) is the prudential regulator of the Australian financial services industry. It oversees a range of financial institutions including banks, building societies, general insurance, reinsurance companies, life insurance, private health insurance, and most of the superannuation industry.

Superannuation refers to the provision of pensions benefits by employers, *ie* group pension schemes.

APRA is funded largely by the industries that it supervises. It was established on 1 July 1998. As at 30 June 2017, APRA supervised financial institutions holding A\$6.1 trillion in assets.

APRA's mission is 'to establish and enforce prudential standards and practices designed to ensure that, under all reasonable circumstances, financial promises made by institutions we supervise are met within a stable, efficient and competitive financial system'.

APRA takes a risk-based approach to supervision that is designed to identify and assess those areas of greatest risk to a regulated entity (or to the financial system as a whole). It then applies its supervisory resources, paying attention to these risks in a targeted and cost-effective manner.

Limitations were identified with regards to the extent that Australia's regulatory regime allowed for risk-based capital, risk management and disclosure requirements. Therefore, APRA developed the Life and General Insurance Capital (LAGIC) standards.

The proposed changes in standards came in response to the global financial crisis.

LAGIC has strong parallels to Solvency II and follows a similar three pillar structure. LAGIC was implemented on 1 January 2013. The LAGIC framework is covered in more detail in the next chapter.

8.5 South Africa

South Africa has a large developed financial services market. Up until 1 April 2018, the Financial Services Board (FSB) was an independent body responsible for regulating the (non-banking) financial services industry in South Africa.

Following the global financial crisis, the FSB launched a project to establish a risk-based solvency framework for the prudential regulation of life and non-life insurers in South Africa. This framework is referred to as the Solvency Assessment and Management (SAM) framework and was implemented as at 1 July 2018. The SAM framework is covered in more detail in the next chapter.

In addition to the changes in solvency framework, the SAM reforms were part of a comprehensive overhaul of the existing financial sector legislation in South Africa. These broader reforms arise from the shift to a 'twin peaks' model of financial regulation in South Africa. This saw the establishment of a prudential regulator in the South African Reserve Bank and a conduct regulator.

From 1 April 2018, the FSB was split into these two new regulators:

- The Prudential Authority (PA) is responsible for regulating a wide range of financial institutions, including banks, insurance companies, financial conglomerates and financial market infrastructure. Its functions include licensing, ongoing supervision and enforcement.
- The Financial Sector Conduct Authority (FSCA) is responsible for market conduct regulation and supervision. It aims to:
 - enhance the efficiency and integrity of financial markets
 - promote fair customer treatment by financial institutions
 - provide financial education and promote financial literacy
 - assist in maintaining financial stability.

This change in supervision can be compared to the approach taken by the UK in 2013 when the Financial Services Authority (FSA) was abolished and replaced by the PRA, which is responsible for prudential regulation, and the FCA which is responsible for conduct regulation (as described earlier).

Chapter 9 Summary

Regulatory objectives and responsibilities

The primary **objectives** of a life insurance regulator are likely to focus on:

- the companies that it supervises: safety and soundness
- consumers: protection, ensuring appropriate outcomes
- the market / industry: promoting its development, effective competition levels
- the wider financial system: protecting / enhancing its integrity.

Responsibilities would typically be set out in handbooks / rulebooks and might include:

- authorisation
- business standards
- supervisory reporting
- monitoring
- valuation and capital requirements
- fit and proper persons
- actions taken by regulators
- transfer of surplus, *eg* applying restrictions on what can be transferred to shareholders
- transfer of liabilities between insurance companies.

The International Association of Insurance Supervisors (IAIS) has identified 'global systemically important insurers' (G-SIIs) that are subject to enhanced supervision due to these **groups** being of such size that their distress or failure would cause severe adverse consequences across the global financial system.

Transfer of liabilities between insurance companies might require:

- court approval
- a report on the scheme of transfer, provided by an independent expert
- consideration of the impact of the transfer on policyholders transferring, those remaining (where relevant) and those already in the company to which the business is being transferred.

Other requirements

There may be a requirement to appoint actuaries into certain **statutory actuarial roles**, *eg* Chief Actuary / Actuarial Function Holder / Appropriate Actuary / Appointed Actuary and With-Profits Actuary.

Professional guidance must be followed, where relevant.

Many jurisdictions are developing regulations aiming to limit the impact of **climate change** on the financial system, *eg* covering disclosure, risk management, investment management and capital assessment.

Regulatory approach by jurisdiction

UK	Prudential Regulation Authority (PRA): prudential regulation, including solvency and capital requirements Financial Conduct Authority (FCA): regulation of conduct in financial markets Both apply a principles-based approach
USA	Each individual State has its own insurance regulator, coordinated through the National Association of Insurance Commissioners (NAIC) General preference for prescription combined with overall asset adequacy analysis, but has been some recent inclusion of more principles-based requirements
China	China Banking and Insurance Regulatory Commission (CBIRC) Approach has to reflect the relatively young, high growth nature of the Chinese insurance market
Australia	Australian Prudential Regulation Authority (APRA) Risk-based approach to supervision
South Africa	Prudential Authority (PA): prudential regulation, including licensing, ongoing supervision and enforcement Financial Sector Conduct Authority (FSCA): conduct regulation, including promoting financial education and literacy

5 Comparison with other jurisdictions

5.1 Overview

The following section provides some high-level examples of the approach taken with respect to statutory reporting and solvency regulation in other jurisdictions around the world.

Students are not expected to know the detail, but the principles highlighted could be examined.

The introduction of Solvency II in the EU has had an impact on insurance solvency regulation in many other jurisdictions around the world.

A high level comparison of the differences between the approaches taken in the EU and in certain other jurisdictions is outlined below. The comparison is not intended to be exhaustive.

5.2 United Kingdom

As outlined in the chapter on the Regulatory environment, the UK left the EU on 1 January 2021 without an EU-wide arrangement for the operation and regulation of financial services. Further discussions will be had between the UK and EU with regards to financial services and at the time of writing (May 2021) there remains considerable uncertainty with regards to the outcome of these talks.

Prior to exit, the UK was part of the EU and Solvency II applied to UK insurers. At the point of exit, the UK was aligned with Solvency II regulations.

It is unclear the extent to which this alignment will continue in the future. Over time, it is possible that there could be a divergence in regulations between the UK and EU, with either:

- the UK actively changing its own rules to be different to the EU, or
- the EU changing its own rules and the UK choosing not to make the same changes.

Immediately following the UK's exit, UK-based insurance companies are no longer able to provide services in the EU and become third-country insurance undertakings.

These issues are not considered further in this version of the Core Reading, but this section will be amended in the future.

The UK was not automatically granted equivalence when it left the EU, despite still using Solvency II at that time. This reflected uncertainties about the extent to which the PRA might introduce changes to the solvency assessment regime, and how far the resultant regulations might deviate from Solvency II.

5.3 USA

Overview

Solvency regulation in the United States has been largely a State-based system for many years. This system is comprised of State insurance departments (currently 50 States along with the District of Columbia and five territories), and can best be described as a national system of State-based regulation.

The National Association of Insurance Commissioners (NAIC) assists regulators, protects consumers and helps maintain the financial stability of the industry. Ultimate regulatory responsibility for insurer solvency rests with each State insurance department and the State insurance commissioner.

To ensure that legal obligations to policyholders are met when they come due, insurers are required to maintain reserves, capital and surplus at all times allowing for an adequate margin of prudence.

Accounting standards, risk-based capital requirements, minimum statutory reserves and State-specific minimum capital requirements form the backbone of the reserve and capital adequacy requirements.

Similar to the UK and EU, solvency regulation in the USA is based on reserve and capital requirements. The federal-level capital requirements are risk-based. States may impose their own minimum capital requirements, which are typically stated in absolute terms or as a percentage of reserves.

Conservatism is a pervasive concept in the specification of these requirements.

In other words, there is a common theme of prudence underlying the solvency requirements.

Risk-Based Capital

The primary measure of required capital is defined by the Risk-Based Capital (RBC) system. The RBC calculation uses a standard formula to determine a capital requirement from which regulators baseline a specified level of regulatory actions and intervention for weakly capitalised insurers.

This can be compared to the ladder of supervisory intervention under Solvency II as described in the next chapter, under which prescribed actions will be taken as a company's capital falls below a specified level.

A significant portion of the RBC formula is derived from the annual statement, which is based upon statutory accounting.

The RBC amount explicitly considers the size and risk profile of the insurer and imposes higher RBC charges for riskier assets or for riskier lines of business, resulting in a higher capital requirement.

Regulators have the authority to take preventative and corrective measures that vary depending on the capital deficiency indicated by the RBC result. These preventative and corrective measures are designed to provide for early regulatory intervention to correct problems before insolvencies become inevitable, thereby minimising the number and adverse impact of insolvencies.

The formula applies factors to balances taken from the statutory financial statements to calculate an RBC requirement. The factors are appropriate across the industry rather than on a company by company basis, ensuring a level of consistency and objectivity across companies.

The RBC is determined using a factor-based approach. For example, the specified factors may be applied to asset values, premiums or reserves. This is equivalent to the approaches taken under Solvency II for the MCR and for the operational risk module under the SCR standard formula approach. These calculations are introduced in the next chapter.

The RBC system includes factors for asset risk, insurance risk and business risk but will not cover every risk that a company faces. The RBC system operates in conjunction with other aspects of US solvency regulation that focuses on company-specific factors and risks, such as annual solvency reviews by regulators, periodic risk-focused examinations, and stress testing / asset adequacy analysis.

RBC is intended to be a minimum regulatory capital standard and is not necessarily the full amount of capital that an insurer would want to hold to meet its safety and competitive objectives.

The RBC does not represent the economic target level of capital that a company should hold. Rather, it is applied to identify 'weakly capitalised companies' and operates as a layer of protection to reduce the probability of insolvency.

Reserves

In addition to the required capital, insurers have conservative reserve requirements which until recently were largely calculated using formulaic approaches (such as net premium methods). This system 'locks in' certain assumptions at issue and therefore produces reserves that do not change in response to the economic environment.

All study material produced by ActEd is copyright and is sold for the exclusive use of the purchaser. The copyright is owned by Institute and Faculty Education Limited, a subsidiary of the Institute and Faculty of Actuaries.

Unless prior authority is granted by ActEd, you may not hire out, lend, give out, sell, store or transmit electronically or photocopy any part of the study material.

You must take care of your study material to ensure that it is not used or copied by anybody else.

Legal action will be taken if these terms are infringed. In addition, we may seek to take disciplinary action through the profession or through your employer.

These conditions remain in force after you have finished using the course.



Chapter 10 Solutions

10.1 Having the required functions in place ensures that resources are dedicated to important elements within the Solvency II framework:

- risk management function – identifying risks to which the insurer is exposed and the risk management processes and controls in place, as required under the ORSA
- actuarial function – setting assumptions, calculating the technical provisions and producing specifications for an internal model
- compliance function – supervising compliance with all Solvency II regulations
- internal audit function – providing an independent assessment of the risk management processes that are relevant to the ORSA and of the overall reporting processes.

There are minimum levels of responsibility defined in the Pillar 2 framework for each function, which helps to ensure quality of output.

Having them as separate functions, with clear segregation of responsibilities, ensures that there is independent review and challenge.

10.2 **Solvency II acronyms**

- **SCR** *Solvency Capital Requirement*
This is an amount of capital that an insurance company must hold in addition to its technical provisions, and so acts as a ‘cushion’ to protect policyholders under adverse conditions where the technical provisions are insufficient to meet obligations.
- **MCR** *Minimum Capital Requirement*
This is as for the SCR. As we shall see in the next chapter, the MCR is lower than the SCR and is the ultimate point of supervisory intervention, *ie* if an insurance company is unable to cover its MCR, it would lose its authorisation.
- **ORSA** *Own Risk and Solvency Assessment*
This aims to ensure that the insurance company understands and manages its risks appropriately and that it can continue to meet its capital requirements on an ongoing basis. It should be used by senior management when making strategic decisions.
- **RSR** *Regular Supervisory Report*
This is a private report from the insurance company to the supervisor, and so enables the supervisor to assess the results of the solvency calculation and details of the ORSA, and hence the financial soundness of the insurer.
- **QRT** *Quantitative Reporting Templates*
These are a subset of the RSR, containing quantitative information – and therefore have the same purpose as above.
- **SFCR** *Solvency and Financial Condition Report*
This provides public disclosures, hence enabling other stakeholders (including shareholders and analysts) to assess the financial soundness of the insurance company.

10.3 **Corporate governance:** in order to demonstrate compliance with Solvency II requirements, in particular those relating to roles and responsibilities of key functions within the business, a company may have made changes to its corporate structure. [½]

For example, if the company has an internal model for its SCR calculation, then the implementation of this model is required under Solvency II to be the responsibility of the company's risk management function. This responsibility may have resided elsewhere, eg within the actuarial function prior to the introduction of Solvency II. [1]

Embeddedness and demonstrable ownership of the risk management process and responsibility for Solvency II compliance by the Board. In particular, the company will have to produce evidence to the supervisor showing that the ORSA is used by senior management and that the impact on the ORSA is considered in strategic decisions. [1]

Demonstrating this is likely to be easier the longer the period over which the ORSA and risk management processes have been developed and used by the company's Board. [½]

Speed of reporting: the regulatory timescale to provide the required quarterly and annual disclosures may be shorter under Solvency II. The company will have reviewed its systems, processes and resources in order to achieve any necessary faster turnaround. [1]

Group structures: the requirements of Solvency II in relation to groups may have required a restructure of any group of which the company may be a member. [½]

For example, if the company is the subsidiary of a non-EEA parent, then an EU holding company may have had to be established. [½]

Constraints that apply to the SCR calculation because of limitations on capital fungibility within a group may have led the company to *choose* to undertake a restructuring exercise prior to Solvency II implementation, in order to free-up capital, even if this was not *required* by the rules. [1]

Processes and documentation: the required standard of evidence and quality of supporting documentation for processes, models and assumptions may be higher at various points within the Solvency II regime than had been the case under Solvency I. [1]

Examples include the ORSA and the SCR internal model, if the company has adopted the internal model approach. (Documentation standards are one of the six internal model tests.) [1]

Risk management function, risk appetite and risk mitigation strategies: all of these will have required review, and possibly changes, prior to Solvency II implementation. For example, if the company's capital position looked likely to be more constrained under Solvency II, it may have considered de-risking, eg doing more hedging or using more reinsurance. [1]

Capital management, including the allocation of capital to different business areas and product lines. The company may have needed to raise additional capital prior to Solvency II implementation in order to meet the continuous requirement to demonstrate compliance with the SCR (ignoring the possibility of any transitional measures that may have been put in place). [1]



Chapter 12 Solutions

12.1 The four areas are:

- a framework document, which covers:
 - the authority, scope and application of the TASs
 - the FRC's Reliability Objective
- TAS 100, a Generic TAS, which covers:
 - six high level outcome-focused principles that apply to all technical actuarial work carried out within the FRC's UK geographic scope
 - the standard of technical actuarial work that users are entitled to expect
- the Specific TASs, the most relevant to Subject SA2 being TAS 200 (Insurance), which:
 - promotes high quality technical actuarial work on particular insurance matters where the FRC has identified that there is a high degree of risk to the public interest
- a glossary of defined terms used in the TASs.

12.2 The relevant professional standards and guidance are:

- the Actuaries' Code, which applies to all members of the IFoA
- Actuarial Profession Standards:
 - APS L1, since With-Profits Actuary is a statutory role as covered by this standard
 - APS L2, since a With-Profits Actuary might need to communicate certain matters to the regulators if they have concerns about an insurer, such as deciding on bonus declarations without having any regard to the With-Profits Actuary's advice
 - APS X2, to ensure that recommendations made by the With-Profits Actuary have received an appropriate level of review, including independent peer review
 - APS X3, if the With-Profits Actuary is required to act as an expert witness in legal proceedings, *eg* as part of an inherited estate attribution exercise or the transfer of with-profits business between companies
- non-mandatory guidance and resource material in relation to:
 - whistle-blowing, as noted above for APS L2
 - dealing with conflicts of interest, such as between the interests of with-profits policyholders and the commercial interests of the company
 - (possibly responsibilities relating to the use of personal data)
- Technical Actuarial Standards, as UK-based work is within the scope of the TASs:
 - TAS 100, since all six of the principles covered (data, assumptions, models, communications, documentation and, in particular, judgement) are relevant to managing with-profits business
 - TAS 200: Insurance, particularly since its scope includes the exercise of discretion concerning with-profits life insurance policies.

12.3 (i) ***Purposes of professional standards and guidance***

The purposes are to:

- maintain the trust of those impacted by an actuary's work [½]
 - build and promote confidence in the work of actuaries and in the actuarial profession [½]
 - assist with protecting the 'public interest' [½]
 - provide a benchmark against which professional conduct can be measured [½]
 - help actuaries work out how to act in difficult situations, ... [½]
 - ... such as where there are conflicts of interest [½]
 - provide additional guidance on the interpretation of regulations where there is otherwise insufficient clarity [½]
 - ensure consistency of approach between members [½]
 - help members to justify their actions to others (*eg* client, employer) in difficult situations. [½]
- [Maximum 3]

(ii) ***Rules-based vs principles-based***

Relative advantages of a rules-based approach are:

- it can be clearer how to act in a certain situation (principles can be vague) [½]
- prescriptive rules are less open to individual interpretation, thus enabling more consistency in application [1]
- it may be easier to judge misconduct against rules rather than principles. [½]

Relative advantages of a principles-based approach are:

- it is impossible to have a set of rules that covers every possible situation, ... [½]
 - ... given the wide variety of roles that actuaries carry out [½]
 - it gives more weight to the use of actuarial judgement, thus respecting the professionalism of individuals [½]
 - principles are easier to keep up to date than rules, ... [½]
 - ... particularly where actuarial roles are evolving into wider fields. [½]
- [Maximum 3]

Chapter 13 Summary

Treating customers fairly

The concept of treating customers fairly is now common around the world. There is no single definition, but the phrase is typically used to mean that a firm should act honestly, fairly and professionally in accordance with the best interests of its clients.

Regulation

Treating customers fairly is embedded in life insurance regulation in many countries.

The International Association of Insurance Supervisors (IAIS) sets out guidance for supervisory standards for conduct of business, including treating customers fairly.

In the UK, six consumer outcomes have been identified that explain what the UK regulator wants TCF to achieve for consumers. These cover:

- TCF being at the centre of the corporate culture
- product design and marketing that meets customer needs
- clear customer information throughout the policy lifecycle
- provision of appropriate advice
- acceptable standards of service and product performance
- no unreasonable post-sale barriers (eg to make a change, exit, claim or complain).

Professional guidance

Professional bodies may also provide guidance on the requirement to treat customers fairly, eg TAS 200 (Insurance) and APS L1 in the UK.

Matters to be considered

Treating customers fairly applies to all types of policy. It has particular relevance to with-profits policies and to other types of policy that have discretionary elements.

Topics to consider in addressing issues relating to treating customers fairly include (but are not restricted to):

- contents of all sales and other literature
- surrender values
- with-profits bonuses, MVRs and payouts
- reviewable charges and premiums
- policyholders' reasonable expectations
- fairness between different classes of policyholder and relative to shareholders.

The practice questions start on the next page so that you can keep all the summaries together for revision purposes.



Chapter 15 Additional Practice Question

A life insurance company has been offered the opportunity to invest in a project that will establish several large solar farms in the country. In return, it will receive a stated proportion of the income achieved by selling the electricity generated to the national grid. The expected yield is significantly higher than on government or high-quality corporate bonds.

Discuss whether this would be an appropriate investment to match the company's immediate annuity liabilities.



Chapter 15 Solutions

Solar farm investment matching annuity liabilities

Matching by term

The investment seems to be a good match for the long-term nature of annuity liabilities, since solar panels normally have a lengthy expected lifetime.

There also may be warranties in place that guarantee their performance for a significant part of that time.

However, there will be a delay before income starts to be generated – whilst the infrastructure is being set up.

Matching by currency

The investment is likely to be a good match by currency, assuming that the annuity portfolio is denominated in the domestic currency.

Matching by nature

However, income will be variable rather than fixed, which makes cashflow matching significantly more difficult.

Part of the variability will relate to electricity prices. These are likely to be broadly real in nature, so provide some hedge against any index-linked annuities. However, it is unlikely that there will be a perfect inflation match, so there will be basis risk.

Electricity prices will also be impacted by the cost of other forms of generation and by wider economic influences, such as oil prices.

A lot of the variability in income from the investment will arise due to weather patterns and fluctuations in the level of solar radiation.

Stochastic modelling will be required in order to assess whether the level of income variability is acceptable, together with consideration of the company's risk appetite and its free capital.

Regulation

Because the income generated is not predictable, it is unlikely that the assets could be included in a matching portfolio for the purposes of obtaining matching adjustment approval for Solvency II or similar.

However, the company might be able to securitise some of the income using an SPV, in order to create an asset that would meet the regulatory requirements for a matching portfolio.

There might be other regulatory constraints on holding such an asset.

However, there might be also be incentives for investing in such a project, as a way of supporting environmental and sustainability initiatives.

An *insurance risk* is a risk other than a financial risk. A *financial risk* is a risk of a possible future change in one or more of a specified:

- interest rate
- security or commodity price
- foreign exchange rate
- index of prices or rates
- credit rating or credit index
- other variable.

This definition leads to a focus on the substance of economic transactions rather than the legal form and helps to standardise the treatment of insurance contracts across industries. The definition also means that certain contracts written by insurers are not classified as insurance contracts, but as investment contracts (*eg* some financial reinsurance contracts and policies with a low degree of risk transfer including many unit-linked contracts).

Products that do not transfer significant insurance risk are classified as investment contracts and are subject to different requirements.

So, very broadly, conventional without-profits and all with-profits contracts are likely to be insurance contracts. Unit-linked contracts may be insurance contracts (*eg* a regular premium unit-linked contract with a large guaranteed death benefit amount) or investment contracts (*eg* a single premium unit-linked contract with death benefit equal to 101% of the value of units).

Accounting for investment contracts is covered in Section 2.5 below.

Reinsurance

IFRS 4 stipulates the need to disclose insurance liabilities gross of reinsurance, and to test the reinsurance asset for impairment.

This approach is similar to the treatment of reinsurance under Solvency II, as was described in an earlier chapter. The 'reinsurance asset' is the value of expected reinsurance recoveries and its 'impairment' is a reduction in the value included in the accounts to reflect the possibility of the insurer not receiving those payments.

IFRS 4 specifies the conditions for impairment in terms of there being objective evidence, being the result of an event (*eg* a default event by the reinsurer), and having a reliably measurable impact on the amounts that the insurer may not receive from the reinsurer.

Exemptions

IFRS 4 stipulates some exemptions from IFRS 9 for embedded derivatives.

IFRS 9 is the standard covering accounting for financial instruments (tangible assets), which includes derivatives. It requires the separation of some embedded derivatives (*ie* financial options and guarantees included within policy terms) from the rest of the policy for valuation purposes. However IFRS 4 allows some exceptions to this, such as not needing to separate out a policyholder's option to surrender an insurance contract for a fixed amount.

2.4 Accounting for insurance contracts – IFRS 17

IFRS 17 was issued in May 2017, with the final amendments to the standard being completed in June 2020. It will take effect from 1 January 2023, although early adoption is permitted in some circumstances. The standard is much more prescriptive than IFRS 4 and its adoption will lead to a substantial change to financial disclosures and the systems and processes that produce them.

Both Solvency II and IFRS 17 are moves towards more market-consistent valuations. One result of these developments is that in future the difference between solvency reporting and accounting value reporting in the EU will be much smaller than in the past. As will be seen in the next chapter, developments in supplementary (EV) reporting have also been moving in this same general direction.

The main criticisms of IFRS 4 concerned:

- **the sensitivity of profits to reserving assumptions**
- **the lack of comparability of different life insurance companies**
- **the early recognition of premiums and profits for long-term contracts.**

IFRS 17 addresses each of these criticisms.

The standard describes three valuation methods:

- **The *General Measurement Model (GMM)*, also referred to as the *Building Block Approach (BBA)*, is described below.**

The GMM defines how the initial measurement of the assets and liabilities of an insurance contract should be recognised and re-measured over time. It defines how the revenue and profit of a contract is realised over the life of the contract.

The GMM is the default valuation methodology for any insurance contract under IFRS 17. This method is likely to be appropriate for traditional long-term life insurance business such as term assurance and non-profit (*ie* without-profits) annuities.

- **The *Variable Fee Approach (VFA)* may be adopted where a significant proportion of the cashflows vary in line with the value of a clearly defined pool of assets.**

This method is typically used for unit-linked contracts and contracts with ‘discretionary participating features’ (DPF) (*ie* with-profits). The VFA is discussed later in this section.

- **The *Premium Allocation Approach (PAA)* is a simplified model that is similar to the unearned premium method used by general insurers.**

This approach is suitable for simpler contracts and most general insurance business. It is unlikely to be relevant to life insurance business, and so it will not be discussed further here.

GMM

Building blocks

The GMM determines the insurance company liability using four building blocks:

- the fulfilment cashflows
- the time value of money
- the risk adjustment (RA)
- the contractual service margin (CSM).

The four building blocks may look odd to actuaries used to producing regulatory balance sheets, but if we merge the first two building blocks and call it the best estimate liability (BEL), it should look more familiar. The following describes the three monetary values: BEL, RA and CSM.

Best estimate liability (BEL)

The methodology for calculating the BEL is similar to that required by Solvency II:

- derive best estimate assumptions
- derive a discount rate from observable market data
- discount the projected cashflows
- allow for the cost of any guarantees.

The actual IFRS value may differ from that calculated for Solvency II for a few reasons, including the unbundling of contracts and the offsetting of profitable and unprofitable contracts, which will be discussed below. There could be other reasons for differences, eg different yield curves or different expense assumptions may apply.

Risk adjustment (RA)

The RA is similar to the Solvency II risk margin, representing the value of the guarantees not captured in the BEL (ie the non-market risks). The RA may be calculated in one of three ways:

- Value-at-Risk (VaR)
- conditional tail expectation (CTE)
- cost of capital (CoC).

IFRS 17 does not specify the confidence level at which the RA should be set – this is at the choice of the insurer.

The RA is likely to be calculated allowing for diversification of risk factors, but the RA must be attributed to individual contracts.

Contractual service margin (CSM)

The CSM is a new concept. At inception, the CSM is set equal to what would otherwise have been considered the day one profit ie the initial premium, less the attributable initial expenses, less the BEL, and less the RA.

The initial CSM is set at inception ('day one', *ie* the point at which the policy is written) for each policy (or group of homogeneous policies), so that the total initial liability of BEL + RA + CSM equals the initial net cashflow of initial premium minus initial expenses. This means that zero profit arises at the point at which the policy is sold. Thus:

$$\text{CSM} = \text{Initial premium} - \text{Initial expenses} - \text{BEL} - \text{RA}.$$

However, the CSM cannot be negative, either at issue or subsequently. Therefore, if BEL + RA exceeds the initial net cashflow, a loss would be recognised immediately.

For a contract that has been written to generate profit, as would normally be the case, the CSM would be greater than zero – provided the risk adjustment (RA) is not too onerous.



Question

Explain why the CSM would be expected to be positive for a profitable regular premium contract, despite initial expenses being likely to exceed the initial premium.

Solution

The CSM would likely be positive for such a contract because the BEL would be negative. This is because the value of future premiums deducted from the BEL would be expected to exceed the value of future benefits and expenses, due to the loadings in those premiums to recover initial expenses and to provide profit margin.

As long as the RA is smaller than the discounted value of all profit loadings, the CSM would be positive.

The CSM may be thought of as 'future profit' or 'unearned profit'. This is a key feature of IFRS 17 reporting – the CSM is released (*ie* profit emerges) over the term of the policy.

The initial CSM is written down (*ie* gradually reduced) over the term of the contract. This write-down is done in line with a chosen 'coverage unit' measure, such as the number of policies in-force. Contracts can be grouped, but have to remain in annual cohorts (*ie* policies written more than one year apart cannot be grouped together).

The release of CSM at each accounting date contributes to profit for that period. Doing this allows the profit loadings to emerge steadily over the policy term, thus smoothing or stabilising reported profit.

Another feature of the CSM is that it offsets the change in value of the BEL and RA due to assumption changes, which means the profit reported in a given year will be affected more by actual experience and less by assumption changes.

In other words, if changes are made to non-investment assumptions (*eg* mortality rates), the CSM is adjusted to offset any resultant change in the BEL and RA. The total liability remains unaffected by the assumption change, and this also contributes to the smoothing of profit emergence. However, if the CSM is not large enough to absorb an increase in BEL and RA, the shortfall will be recognised immediately as a loss.

Another IFRS principle is that profitable and unprofitable contracts should not be offset. Under IFRS 17, each policy should be categorised as one of:

- **loss-making at inception**
- **profitable with no significant risk of making a loss**
- **any other profitable contracts.**

The last categorisation is referring to policies which are profitable at inception but become loss-making or have a significant risk of making a loss.

When contracts make a loss, that loss is incurred immediately, and when contracts make a profit, the profit will be earned over the term of those contracts. This is deliberately asymmetric. Note that contracts in a loss position are referred to as having a 'loss component' rather than a CSM, as the CSM cannot go negative.

VFA

The Variable Fee Approach (VFA) is a different calculation to that of the GMM, but the objectives are the same. Subject to the constraints mentioned earlier, the VFA may be used for unit-linked, with-profits or other contracts in which the fulfilment cashflows vary in line with a pool of assets.

The 'variable fee' element represents the fee payable to the insurer, which also varies in line with the value of the pool of assets. Since the variable fee is a transfer of funds within the insurer, rather than a cashflow, it is not part of the fulfilment cashflows and so not part of the BEL. The concepts of RA and CSM also apply to the VFA.

A key difference between the GMM and the VFA concerns the discount rate. For the VFA, the discount rate is calculated with reference to the pool of assets, and the CSM is unlocked at each future period to absorb the change in the value of BEL and RA as a result of the change in the discount rate. Under the GMM, the discount rate is based on market observable data, and the CSM is not unlocked when the discount rate changes.

For example if the discount rate increases, the BEL and RA will fall. Under the GMM approach, similar to Solvency II, this will create a release of profits (which will be shown in the profit and loss statement (P&L) or income statement). In contrast, under the VFA approach, this profit release will get absorbed by the CSM (*ie* the CSM will be increased by the same amount) and will only be released as the CSM unwinds.

Disclosure requirements

The standard also describes the various disclosures, including:

- **the insurance revenue earned**
- **insurance service expenses incurred**
- **insurance finance income and expenses.**

Transitional arrangements

An important area for many insurance companies will be the transitional arrangements when IFRS 17 comes into effect. Companies will be required to calculate a transitional CSM for business that is already in-force when IFRS 17 takes effect. This is a significant area for many insurers and will be a key part of the transitional balance sheet.

The fact that the CSM is set at policy inception and then written down in a defined pattern presents practical issues for insurers in relation to the implementation of IFRS 17. It is necessary to look back through historical data for policies in-force at the implementation date to determine what the initial CSM would have been for each, and how it would have been written down. There are challenges for insurers in terms of capturing the appropriate historical data and performing these retrospective calculations.

The transitional arrangements help to alleviate these challenges to some extent.

There are three possible approaches to determining the transitional balance sheet.

- **Full Retrospective Approach (FRA) – this must be used if it is practicable to do so and involves determining the position at transition as if IFRS 17 had applied throughout the full policy lifetime.**

If it is not possible to use an FRA basis, for example due to lack of historical data availability for older policies, then two alternative approaches can be used:

- **Modified Retrospective Approach (MRA) – this is a simplified version of the FRA calculations, which uses reasonable information that is available without excessive cost or effort to produce a result as close as possible to a full retrospective calculation.**
- **Fair Value Approach (FVA) – where there is not sufficient information to carry out an MRA calculation, a company can determine the transitional CSM using the fair value of the policies less the fulfilment cashflows at transition date.**

This means the excess of fair value over the sum of the BEL and RA.

2.5 Accounting for investment contracts

The cashflows arising under unit-linked investment contracts are separated into an investment management services component, measured in accordance with IAS 18 *Revenue*, and a financial instrument component, measured in accordance with IFRS 9 as described below.

In practice, this means that the accounting for these contracts differs from the accounting for unit-linked insurance contracts.

For unit-linked investment contracts, the financial instruments are the assets backing the unit fund (including any options and guarantees) and the investment management services component would contain any annual management charges, bid / offer spreads, surrender penalties, *etc*, as well as the costs incurred in managing the unit-linked contract.

2.6 Accounting for financial instruments

Accounting for financial instruments is currently contained in IFRS 9 (which replaced the earlier IFRS for financial instruments, IAS 39 *Financial Instruments: Recognition and Measurement*, in 2018).

Entities whose business is predominantly insurance may be able to defer adoption of IFRS 9 until the effective date of IFRS 17 for insurance contracts.

Previously, under IAS 39, all financial assets were measured at fair value at initial recognition. Subsequent to initial recognition, the measurement and presentation of movements in the value of a financial asset depended on the classification of the financial asset.

For example, assets categorised as 'available for sale' continued to be measured at fair value whereas those categorised as 'held to maturity' were measured at amortised cost.

The default measurement under IAS 39 was that changes in fair value were recognised in profit and loss as they arose ('FVPL') for some types of financial asset, and other financial assets were measured at amortised cost or fair value through other comprehensive income ('FVOCI').

FVPL stands for 'fair value through profit and loss'.

The 'other comprehensive income' is referring to items of revenue that are not recognised as profit or loss in the IFRS accounts, for example some types of unrealised gains and losses.

Under IFRS 9 the default measurement is FVPL, unless restrictive criteria are met for classifying and measuring the asset at either amortised cost or FVOCI.

The IFRS 9 model is potentially simpler as more types of financial asset will be measured at FVPL than was the case under IAS 39. For example, the default measurement under IAS 39 for non-trading assets was FVOCI, but under IFRS 9 it will be FVPL.

It is potentially simpler because the majority of financial assets under IFRS 9 will be measured at FVPL.

Non-trading assets are long-term investments which are not bought for selling in the short-term, eg building and machinery investments.

The impact on profit on loss of moving to IFRS 9 will depend on the financial assets held by a company. For some companies, the move to IFRS 9 could produce similar results to IAS 39. For companies where more financial assets will be measured under IFRS 9 at fair value, with changes in fair value recognised in profit and loss as they arise, IFRS 9 could lead to more income statement volatility for the company than was the case under IAS 39.

This increase in volatility from recognising an asset as FVPL as opposed to FVOCI is due to recognising the change in the fair / market value of the asset at each reporting period as opposed to using a constant factor to write down the asset, ie amortisation. For example, derivatives, which can be extremely volatile in value, are recognised as FVPL under IFRS 9 but may have been recognised at amortised cost under IAS 39.

All study material produced by ActEd is copyright and is sold for the exclusive use of the purchaser. The copyright is owned by Institute and Faculty Education Limited, a subsidiary of the Institute and Faculty of Actuaries.

Unless prior authority is granted by ActEd, you may not hire out, lend, give out, sell, store or transmit electronically or photocopy any part of the study material.

You must take care of your study material to ensure that it is not used or copied by anybody else.

Legal action will be taken if these terms are infringed. In addition, we may seek to take disciplinary action through the profession or through your employer.

These conditions remain in force after you have finished using the course.

17.4 **US GAAP matching principle**

The principle states that expenses should be matched with revenues wherever it is reasonable to do so and that expenses are not recognised when they are incurred, but when the work undertaken (or product produced) makes its contribution to revenue.

Therefore, unless there is no connection to any generated revenue, the recognition of expenses is likely to be deferred.

This means that profits will emerge more quickly under the matching principle than would otherwise be the case, *ie* if expenses were recognised as soon as they are incurred.

For example, initial expenses incurred when acquiring a life insurance contract can be spread through the product term. This reduces (or eliminates) the initial loss that would otherwise arise.

However, the total amount of profit emerging over time will remain unchanged – it is only the pace of recognition that is impacted.

17.5 (i) **Reliability**

The financial standards explain that an accounting policy is reliable if:

- it provides a *faithful representation* of the entity's financial position, financial performance and cashflows [1]
 - it reflects the *economic substance* of transactions, other events and conditions, and not merely their legal form [1]
 - it is *neutral* and free from bias [½]
 - it is *prudent* [½]
 - it is *complete* in all material respects. [½]
- [Maximum 2]

(ii) **Continue using Solvency I methodology**

The company may still be acquiring understanding of how its position may change from year to year on a Solvency II basis. [½]

It may be reluctant to publish until it has a clearer view on this and on how to optimise its business. [½]

Continuing to publish results on the same basis as previously presents the market with a consistent series of results on which to judge a firm's performance. [½]

Switching to a methodology based on the Solvency II balance sheet would lead to two switches being required, as a firm would still need to move to IFRS 17 when it is implemented. [1]

This would require significant additional work, including communication with shareholders and analysts ... [½]

... and the company might choose to focus its available resources on IFRS 17 implementation. [½]

It is likely that the timeframes required to complete the financial statements are shorter than those of Solvency II. Therefore, the latter results might not be produced in time to be used directly in the accounts – and accelerating their production could require additional modelling development. [1]

Move to Solvency II methodology

Although there are differences, IFRS 17 is more aligned with Solvency II than Solvency I. [½]

For example, both IFRS 17 and Solvency II involve best estimate cashflow projections and risk margin calculations. [½]

Therefore, moving to using Solvency II in the financial statements for the interim period might ‘smooth’ towards the eventual implementation of IFRS 17. [½]

It may be cost effective to leverage the expertise acquired and the upgraded systems from the Solvency II internal model approval process, to produce both supervisory reports and statutory accounts. [1]

The company may have employed external contractors to help with Solvency II implementation and may have sought their advice and expertise with respect to enabling the same results to be used for the financial statements. [½]

By basing its accounting policies on Solvency II methodology, the company will be making changes to its accounting system. This along with Solvency II implementation will result in a comprehensive review of its finance and actuarial systems strategy. [1]

Alternative approach

Alternatively, the company could move straight from Solvency I methodology to early adoption of IFRS 17. [½]

This is feasible since the final standard has been published. [½]

It will avoid the company having to make an additional set of system changes nearer to the IFRS 17 implementation date. [½]

However, the company may prefer to wait until clearer industry practice emerges in relation to interpretation of some of the details of the final standard. [1]

Other considerations

The company would also consider the impact of each approach on the volatility of its year-on-year reported profit ... [½]

... and the approach that its competitors are choosing to take. [½]

[Maximum 8]



Chapter 21 Solutions

21.1 *Management actions for 'newer' style unitised with-profits business*

- the degree of smoothing of investment performance
- the period of time over which this smoothing is performed
- the extent to which there is any differentiation between groups of policies
- the management of any smoothing account
- investment strategy
- the proportion of asset share paid out on surrender, to some extent
- the application of any MVRs
- changes to variable charges
- whether to charge for the cost of capital supporting the smoothing method
- the level of new business accepted
- possibly, distribution of any accumulated surplus (*eg* due to consistent downward smoothing)
- possibly, capital injections to support smoothing of the business

21.2 *Principles and Practices of Financial Management*

The Principles are enduring statements of the overarching standards that a company adopts in managing its with-profits funds and so should be subject to very little change.

They describe the approach used in responding to longer-term changes in the business and economic environment.

The Practices describe the methods used to implement the Principles and the approach used in responding to shorter-term changes.

The Principles would therefore be expected to change less often than the Practices.

They are also likely to have a more significant impact on with-profits policyholders if they were to change.

Consequently, more written notice must be given if a Principle is to be changed, than if a Practice is to be changed.

Practices can even be notified retrospectively.

21.3 (i) **Expenses**

Short term

The most significant savings will be connected with areas of the company that are no longer required. Most operations relating to the acquisition of business can be dispensed with immediately. [½]

These include:

- sales and marketing staff [½]
- branch offices [½]
- some head office functions (*eg* new business customer support) [½]
- new business systems (*eg* new business illustrations). [½]

It might be possible to sell:

- a direct salesforce [½]
- buildings [½]
- rights to certain new business systems. [½]

Costs incurred will include:

- redundancies [½]
- disposal of literature (marketing, product particulars *etc*) [½]
- trading assets to the extent that investment strategy has to be changed [½]
- penalties associated with early termination of leases. [½]

All product development and some systems development work can be stopped ... [½]

... although some systems development is likely to have to continue, *eg* to comply with changing legislation, to replace obsolete technology and also any developments required as a direct result of the closure. [½]

The company might decide to cut back on its admin function, since quality service is no longer needed to attract new business. [1]

However, business retention may be important to keep per-policy fixed expenses at an acceptable level. [½]

There will be a delay before some overheads can be reduced (*eg* sale of branch offices). In the meantime, per-policy expenses may increase if there are a significant number of withdrawals. [1]

Prior to closure, expenses will have been split between initial and renewal. There is some subjectivity in this decision, *eg* in allocating overheads between the two types. After closure, all expenses will be renewal and in particular all overheads will be classed as renewal expenses. This increase will partially offset the savings identified above when determining per-policy renewal expenses. [1]

8 Climate risk

8.1 Introduction

As a recap on climate change from the earlier chapter on the General business environment:

Whilst the scientific consensus is that climate change associated with global warming is in progress (IPCC, 2014), the scale and timing of its impacts are uncertain. The future actions of society in response to climate change, and their ultimate effectiveness in mitigating these impacts, are also unknown.

The effects of climate change could include impacts on health and mortality, physical assets and financial markets. Therefore, climate change could have significant implications for life insurers. In particular, climate change could impact many different areas of actuarial work including product design, pricing, reserving, risk management and investment.

8.2 Climate change risk categories

Climate change risks could arise from adverse changes in the physical environment and secondary impacts in the economy at a regional or a global scale.

Climate risks for financial companies are categorised into:

- **physical risks**
- **transition risks**
- **liability risks.**

Climate change generates many examples of the risk categories already covered in this chapter, particularly operational, market and insurance risks.

Physical

Physical climate risks are the first-order effects of environmental changes such as greenhouse gas emissions, pollution and land use. The effects may be chronic, such as global warming and sea level rise, or they may be acute events, such as instances of extreme weather.

Examples of physical climate risks are:

- **higher rates of ill health (morbidity) and deaths (mortality) due to a climate change-related rise in wildfires and resulting air pollution – leading to higher life and health insurance claims**

Greater air pollution can have a significant adverse impact on those with existing respiratory conditions.

- **increased mortality among elderly populations with pre-existing health conditions or vulnerabilities, due to a climate change-induced rise in heat waves – leading to higher life insurance claims**

These excess heat-related deaths principally arise from dehydration and increased cardiovascular strain, so those with heart conditions are particularly at risk.

- increased frequency and concentration of extreme weather events and natural disasters – resulting in higher life and health insurance claims**

As well as claims arising as a direct impact of such events, morbidity and mortality rates tend to be increased for some time afterwards due to the vulnerability of the remaining population, *eg* from loss of housing or water supply.
- increased likelihood and severity of epidemics and pandemics due to a chronic rise in temperatures and humidity, which form a breeding ground for vector-borne diseases – causing higher life and health insurance claims**

Vector-borne diseases result from infections transmitted through a living organism, such as mosquitos and ticks. Examples include malaria and dengue fever. Climate change can impact the abundance of the vectors each season and their geographic spread.
- increased ill health resulting from the failure of a crop harvest due to weather, pestilence or soil degradation – leading to an increase in mortality claims.**

Health insurance claims would also likely increase, if such insurance is available in that area. Crops can fail for many climate-related reasons, such as an increase in flooding, drought, wildfire, insect damage (*eg* locust swarms) or soil erosion.

It is possible that some combinations of changes to physical risks could lead to decreases in morbidity and mortality, for example if lifestyle changes made in response include a more active way of living.

For example, an increase in global temperatures might allow an increase in physical activity and exercise during the colder months.

There are also operational risk impacts arising from physical climate risks, depending on geographical location. Companies who use a lot of outsourcing, on a global basis, are more exposed to the risk of extreme weather events impacting their operations.

Transition

Transition risks refer to economic, political and market changes as a result of efforts to mitigate climate change.

Examples of climate transition risks are:

- policy changes designed to reduce fossil fuel consumption (*eg* taxes, subsidies, limitations) resulting in investments in fossil fuels and carbon-intensive industries losing value**

This will have an impact on life insurance investment products.
- trends in consumer preferences towards ‘greener’ products and companies**
- undertakings' investments in carbon-intensive industries resulting in reputational damage, making it difficult to attract and retain customers and staff**
- technological innovation causing shifts in market supply and demand, *eg* renewable energy**
- transition to low-carbon economy reducing demand for life insurance products, *eg* occupational pension plans, where an undertakings' customer base is heavily exposed to conventional carbon-intensive industries.**

From a life insurance company's perspective, transition risk principally relates to:

- changes in the values of assets held, *eg* equity holdings in companies with a significant dependency on fossil fuels / carbon consumption, due to:
 - the direct impact on the underlying entities of policy changes
 - a shift in market sentiment towards sustainability
- changes in demand for certain life insurance products and (where relevant) investment options
- adaptation of the operational model.

Liability

Climate liability risks can arise from injured parties seeking compensation for the impacts of climate change. These impacts may be the first-order physical impacts related to climate change, or the second order transition impacts.

Examples of climate liability risks are:

- **new links are established between air pollution and adverse health conditions, resulting in a new class of latent claims**
- **a coal mining company folds and investors sue the company for failing to adequately disclose and manage strategic financial risks arising from climate change and energy transition**
- **undertakings that do not take into account the impact of their investment decisions on climate change face direct claims for damages and litigation costs.**

These liability risks principally impact general insurers, in terms of the potential for higher claims arising from the liability insurance business that they sell.

However, life insurance companies would also be exposed in terms of:

- the impact on the market values of assets held in affected companies
- counterparty risks arising from any relationships with affected companies.

8.3 Climate risk management

Climate risk should be included throughout the company's risk management framework.

Appropriate controls will correspond with those for the relevant wider risk categories, as described in earlier sections.

For example, business continuity plans should be in place to enable operations to continue under extreme weather conditions.

All study material produced by ActEd is copyright and is sold for the exclusive use of the purchaser. The copyright is owned by Institute and Faculty Education Limited, a subsidiary of the Institute and Faculty of Actuaries.

Unless prior authority is granted by ActEd, you may not hire out, lend, give out, sell, store or transmit electronically or photocopy any part of the study material.

You must take care of your study material to ensure that it is not used or copied by anybody else.

Legal action will be taken if these terms are infringed. In addition, we may seek to take disciplinary action through the profession or through your employer.

These conditions remain in force after you have finished using the course.

Chapter 22 Summary

Risk management and controls

The '**three lines of defence**' model (business operations, oversight functions, independent assurance providers) can be used to implement enterprise risk management, with strong communications between each line being vital.

Over-arching risk controls include:

- internal audit function
- external audit arrangements
- risk function (with a Chief Risk Officer)
- control accounts – to ensure that different sources of company data reconcile
- management information.

Risk categories

Credit risk

Credit risk controls should take account of:

- counterparty (or asset) exposures
- the adequacy of diversification actions
- the likelihood of default
- the expected loss in the event of default
- the period for which the exposure continues
- the level of collateral or other mitigations (*eg* credit insurance, derivatives).

Market risk

Market risk controls will include:

- governance arrangements and authorisation levels around investment management decisions
- understanding the sensitivity of liability calculations to movements in market values
- defined management actions in the event of movements in key market indicators
- asset-liability management and derivatives.

Liquidity risk

Liquidity risk controls will include:

- identification and monitoring of situations that could cause short-term cashflow mismatches, *eg* due to
 - claims volatility and policyholder options
 - investment transactions such as derivative collateral (margin) requirements.

Operational risk

Operational risk controls will include having:

- a robust framework for treating customers fairly (conduct risk)
- a strong culture of model ownership, validation and documentation (model risk)
- robust unit pricing processes, including not allowing surrenders at a preceding price.

Insurance risk

Insurance risk controls include:

- underwriting
- reinsurance, which generates its own additional risks:
 - counterparty risk
 - legal risk
 - systems risk
- performing robust mortality projections
- longevity swaps – in return for a fixed series of payments, the insurer receives a floating series of payments linked to the actual annuity amounts paid.

Group risk

Group risk controls include:

- monitoring exposures to other companies within the group
- ensuring that there is open dialogue with group management.

Climate risk

The three types of climate risk are:

- physical – the direct effects of environmental changes, *eg* extreme weather
- transition – the result of efforts to mitigate climate changes
- liability – from injured parties seeking compensation for climate change impacts.

These span the other main risk categories, with corresponding controls being appropriate.



Chapter 22 Additional Practice Question

A life insurance company writes a wide range of products.

Give examples of insurance risks that arise for the company in relation to climate change, stating the relevant climate risk category for each.



Chapter 22 Solutions

Insurance risks relating to climate change

- Physical – higher than expected mortality / morbidity, such as due to:
 - greater air pollution, *eg* from wildfires
 - more extreme weather, *eg* heat waves
 - more natural disasters
 - greater prevalence of insect- or parasite-borne diseases
 - crop failures
 - reduced availability of freshwater supplies
- Physical – lighter than expected mortality (*eg* annuity business) as a result of greater levels of physical activity and exercise in warmer weather
- Transition – higher withdrawals from unit-linked or with-profits policies as a result of poor investment performance
 - *eg* due to being over-weight in carbon-intensive industries and under-weight in renewables
- Transition – higher withdrawals from all products due to reputational damage as a result of:
 - not meeting environmental targets in its own operations, *eg* continuing to endorse high levels of company car use, not committing to recycling consumables
 - continuing to invest in unfavoured industries / companies
- Transition – higher per policy expenses due to
 - higher withdrawals, as above
 - lower new business sales for the same reputational damage reasons
 - lower sales of unit-linked business due to not offering an appropriate range of climate-aware linked funds
 - lower sales of group products (*eg* group life assurance, group personal pensions) if the target market is focussed on conventional carbon-intensive industries
- Physical – higher than expected expenses if the insurer is impacted by an extreme weather event / natural disaster itself
- Physical – higher than expected expenses if outsourcers are compromised by an extreme weather event / natural disaster and alternative arrangements have to be found
- Transition – higher than expected expenses in relation to the cost of transitioning

1.3 Environmental, social and governance (ESG) considerations

As consumers become more aware of their personal responsibility towards climate change and sustainability, they will search for products designed with such factors in mind. It is increasingly common for policyholders to incorporate environmental, social and governance (ESG) considerations into their investment practices and product choices.

A wide range of investment considerations is included within the scope of ESG.

Examples of ESG factors include:

- **environmental (climate change, resource depletion, waste ...)**
- **social (human rights, modern slavery, working conditions ...)**
- **governance (bribery and corruption, executive pay, board diversity and structure ...).**

There are of course many ESG implications for the operations of a life insurance company.

Focussing here on product design and pricing, the main issues to consider will be:

- offering appropriate fund choices for unit-linked products
- implications for the marketability of products more widely if the company is perceived not to be meeting standards, *eg*:
 - not reflecting ESG in investment choices for assets that back non-linked contracts
 - not promoting healthy working practices or embracing diversity
 - inadequate ESG credentials of suppliers.

Although these latter points are less accessible to potential customers, there is a trend towards greater public accountability on such aspects.

There is increasing integration of ESG considerations in investment practices within life insurance companies, due to reasons of risk and return and the public interest as well as the more traditional ethical reasons.

As well as the potential upside from higher product sales, taking into consideration ESG factors as part of investment strategy can lead to better investment performance. For example, investment in green technology may be an area of significant growth potential.

One important factor for companies to consider in relation to product design and pricing in particular, is sustainable investment options. Sustainable investment refers to investment approaches which take account of ESG issues in a way that is consistent with the long-term sustainability of society and the natural environment. This is relevant when investment is motivated by financial objectives having regard to long-term sustainability.

Examples of sustainable investment would be:

- **investments in green energy companies, eg solar, wind and water energy**
- **avoidance of investments within the fossil fuels industry, eg oil, coal**
- **investments in issued green bonds**
- **investments in companies targeting a zero-emissions policy**
- **investments in fair-trade companies.**

Detailed information would have to be provided to potential customers, to give them reassurance that ESG standards are being met within the investments held.

Investors and policyholders increasingly analyse such non-financial information when evaluating whether to purchase a product.

Investment departments have to perform thorough research on the assets and their issuers, in order to screen their investment choices appropriately. They may also be required to engage proactively with the companies in which they have invested, to demonstrate that they are using their voting rights to encourage positive ESG practices. Together with the need for detailed customer information, this can increase costs – which would have to be passed on to policyholders in the product pricing or fund charges.

Products should be designed in line with the UN Sustainable Development Goals and Principles for Responsible Investment, as well as the ESG objectives of other relevant government and industry organisations.

The Sustainable Development Goals were developed with the aim of promoting global prosperity (ending poverty and building economic growth) whilst protecting the environment. The 17 goals include quality education; gender equality; industry, innovation and infrastructure; climate action; peace, justice and strong institutions; partnership.

More information can be found at: www.un.org/sustainabledevelopment.

The UN Principles for Responsible Investment (PRI) is an international organisation that is dedicated to promoting environmental and social responsibility amongst investors.

Its members comprise financial institutions who commit to the following six principles:

- incorporating ESG issues into their investment analysis and decision-making processes
- being active owners and incorporating ESG issues into their ownership policies and practices
- seeking appropriate disclosure on ESG issues by the entities in which they invest
- promoting acceptance and implementation of the principles within the investment industry
- working together to enhance effectiveness in implementing the principles
- reporting on activities and progress towards implementing the principles.

More information can be found at www.unpri.org.